

BACKGROUND

• Boston Keratoprosthesis Type 1 (KPro), an artificial cornea, requires bandage contact lens (BCL) wear to maintain graft hydration and minimize complications

• Minimal documentation exists on the use of hybrid lenses for this purpose

• We report a case of improved BCL retention with a hybrid lens over a KPro

• We highlight the phenomenon of surface epithelization over the KPro front plate, and the utility of regular epithelial debridement in order to maintain adequate vision

CASE REPORT

CC	<ul style="list-style-type: none">59 YO WM presents for contact lens follow-up s/p KPro placement OD
HPI	<ul style="list-style-type: none">Reports 10 days of green, purulent discharge, wakes up with matted lashesFeels OD vision is decreasing, symptomatic for ”film over contact lens”Reports worsening diplopia – possibly monocular, OD
Ocular Hx	<ul style="list-style-type: none">Prior ocular history was significant for therapeutic penetrating keratoplasty (PKP) after acanthamoeba keratitis ODNeurotrophic ulceration and a self-sealed perforation developed over the PKP and progressed to painful keratolysis; visual acuity (VA) deteriorated to light perception (LP)The patient underwent KPro placement and lensectomy, and a Kontur soft BCL was placed to protect the graft. BCVA eventually improved to 20/25, with fluctuationAt subsequent visits, poor Kontur BCL retention was observed despite multiple base curves and diameters trialedThe patient reported foreign body sensation and significant lens deposits were noted, contributing to decreased VA as low as count fingers (CF)
Exam	<ul style="list-style-type: none">VA: 20/300 OD, 20/20⁻³ OSLids/Lashes: MGD, telangiectasia, trichiasis temporal right lower lidConjunctiva/Sclera: 1+ injection; purulent discharge inferiorAnterior Chamber: Deep and quiet (-) cells, flareIris: S/p iridoplasty, iris well separated from back plateLens: Aphakic, posterior capsule intact; minimal fibrosis nasally

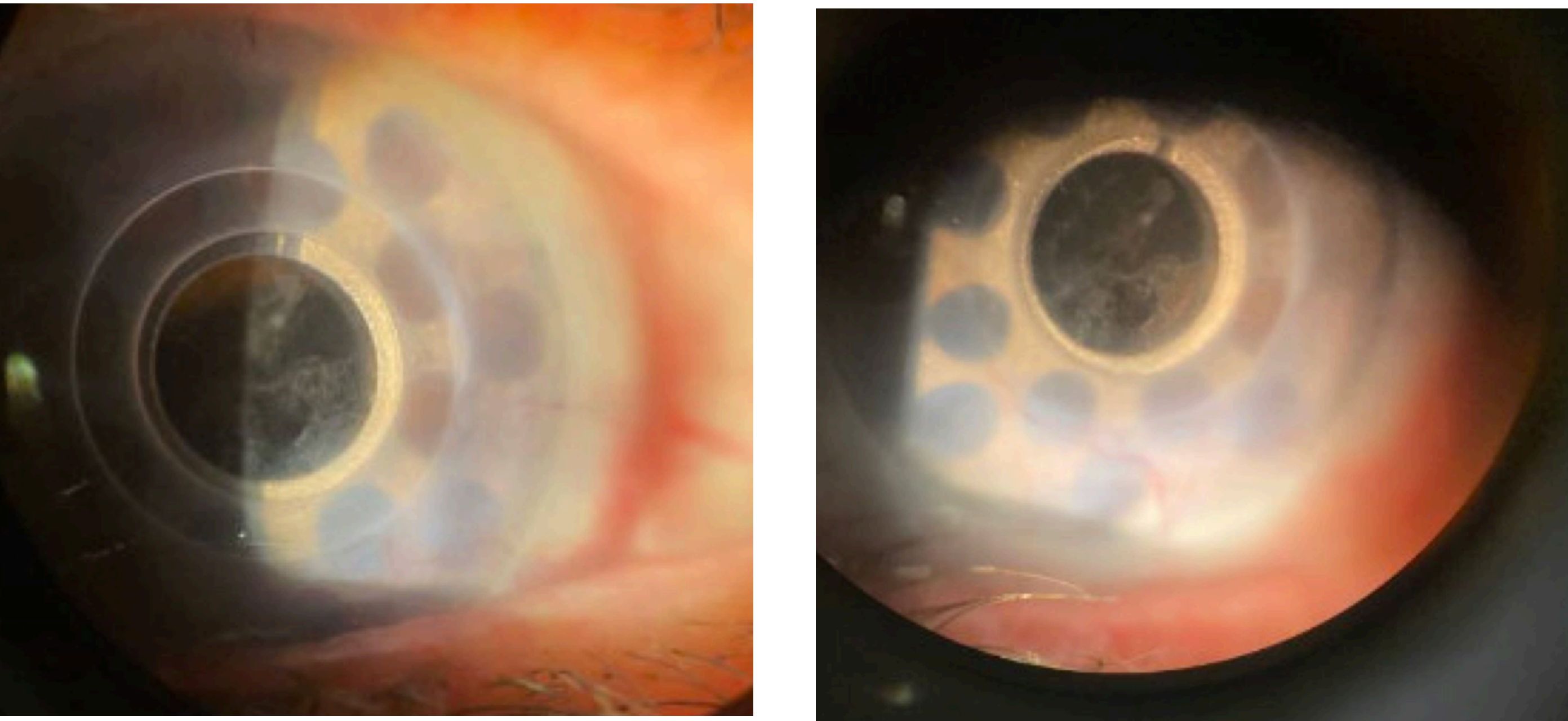


Fig 1-2. Hybrid contact lens over Boston KPro, with underlying purulent debris and epithelial cell proliferation

Management	
OD	<ul style="list-style-type: none">The patient was refit into a hybrid BCL to promote lens retention, and VA improved to 20/20⁻². Lens retention improved significantly; replacement was continued every 3 months due to deposit accumulationEpithelial ingrowth developed over the KPro optic, reducing VA to 20/30⁻²; epithelial debridement restored vision to 20/20Patient increasingly more symptomatic for aniseikonia due to full myopic Rx in CL OD, in specs OS (currently wears plano spectacle lens OD over CL)Ordered new CL OD with change in power (3D less minus). Plan to refract over CL at next visit to incorporate some minus Rx into specs in order to balance the image between both eyes

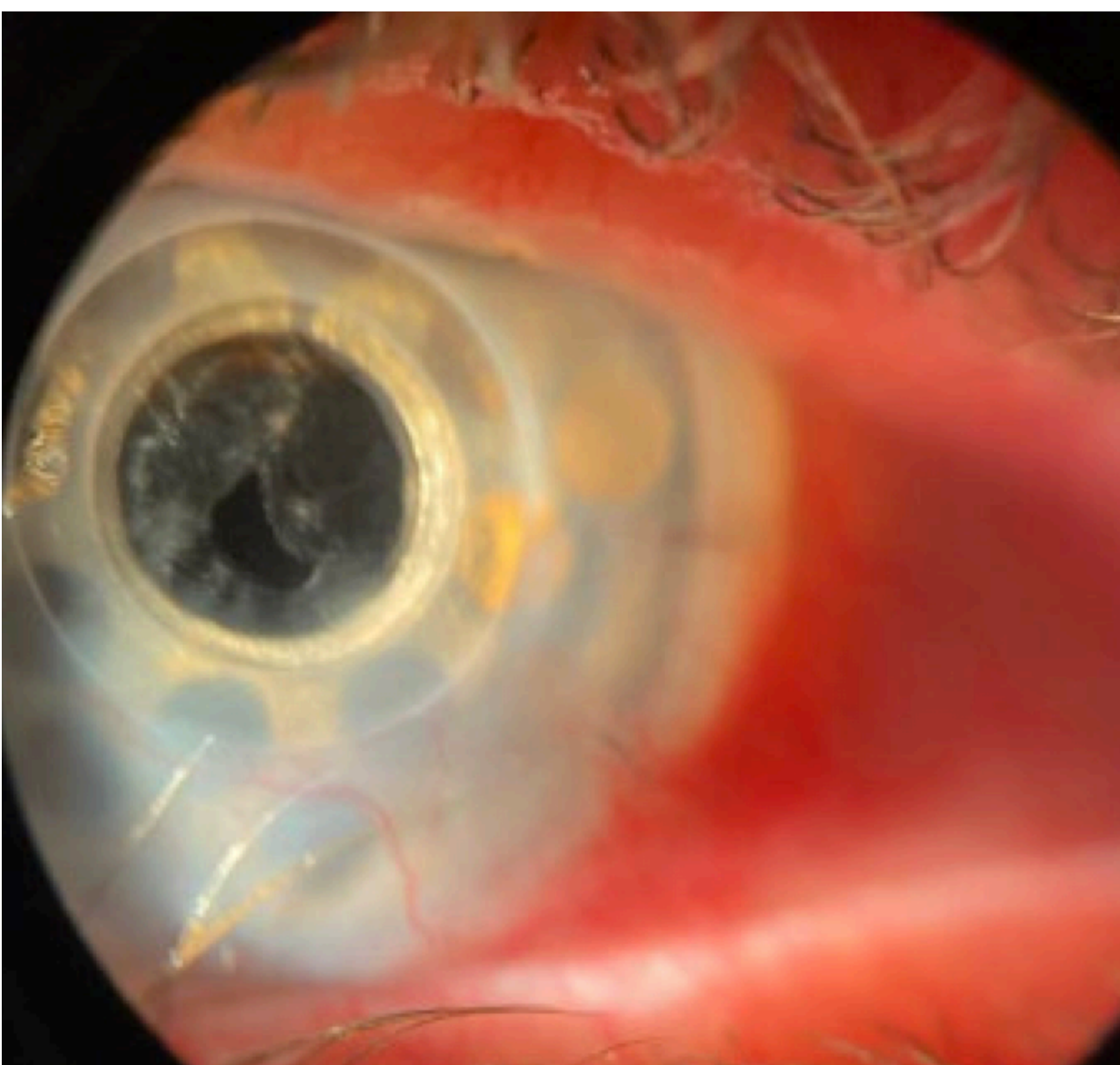


Fig 3. Epithelial proliferation over KPro front plate; no BCL in place

DISCUSSION

•Suitable BCL selection is imperative to preserve KPro function.

•Hybrid BCLs are a viable option for KPro eyes, particularly in cases of poor soft BCL retention, decreased vision and debris deposition

• If VA remains reduced despite BCL replacement, it is prudent to examine the KPro surface for possible epithelial growth, which may be treated with debridement

•Aniseikonia in KPro patients may be treated with full CL correction in the fellow eye (with polycarbonate spectacles over for monocular precaution), or with a balanced combination of spectacle and CL Rx that reduces asymmetry in image size

REFERENCES

1. Beyer J, Todani A, Dohlman C. Prevention of visually debilitating deposits on soft contact lenses in keratoprosthesis patients. Cornea. 2011 Dec;30(12):1419-22.
2. Kiang L, Rosenblatt MI, Sartaj R, Fernandez AG, Kiss S, Radcliffe NM, D'Amico DJ, Sippel KC. Surface epithelialization of the type I Boston keratoprosthesis front plate: immunohistochemical and high-definition optical coherence tomography characterization. Graefes Arch Clin Exp Ophthalmol. 2012 Aug;250(8):1195-9.

Bandage Contact Lenses Trialed	Retention	Best Corrected Visual Acuity
Kontur Kontakt Lens: 8.9/16.0/plano	Poor	20/25
Kontur Kontakt Lens: Multiple base curves and diameters	Poor	Variable
Synergeyes Duette Hybrid: 7.9/14.5/-9.00/steep skirt)	Excellent	20/20 ⁻²